CLAIMS

We claim:

1. An automated sprayer for spraying the walls of an enclosure with a cleanser, comprising:

a metering system for controlling flow of the cleanser;

a spray head for spraying cleanser during a spray cycle; and

a control for initiating the spray cycle and automatically terminating it.

2. The sprayer of claim 1, further comprising a container containing the cleanser.

3. The sprayer of claim 2, wherein the sprayer has a tray sized to receive the container in an inverted fashion.

4. The sprayer of claim 3, wherein the tray includes an integral tube extending downwardly and through which cleanser can be metered by the metering system to the spray head.

5. The sprayer of claim 3, further comprising a hanger hook for mounting the sprayer on a shower spout.

6. The sprayer of claim 5, further comprising a suction cup for securing the sprayer to a wall of the enclosure.

7. The sprayer of claim 2, further including a timer coupled to the metering system for delaying activation thereof after the spray cycle is initiated.

8. The sprayer of claim 7, wherein the control is a switch.

9. The sprayer of claim 8, wherein the timer is an electronic timing circuit.

10. The sprayer of claim 9, further comprising a user notification system including a light or sound alarm.

11. The sprayer of claim 10, wherein the notification system includes a light and a sound alarm.

12. The sprayer of claim 11, wherein depressing the switch while the timer is activated prevents the metering system from operating until reactivating the spray cycle.

13. The sprayer of claim 12, further comprising a housing containing the timer, switch and notification system.

14. The sprayer of claim 3, wherein the container has a mouth communicating with a tubular passage extending downward from the tray and wherein the tray includes a raised member for puncturing a seal covering an opening of the container.

15. The sprayer of claim 2, wherein the metering system and spray head are provided by a rotatable dispensing cup disposed about a longitudinal axis and covered by an annular lid with an axial opening through which a tube extends for passage of the cleanser into the cup, the lid being attached to the cup at points spaced about the rim of the cup.

16. The sprayer of claim 15, wherein the metering system further includes a ball valve.

17. The sprayer of claim 15, wherein the control is a switch for activating a motor to which the cup is mounted.

18. The sprayer of claim 17 further including timing circuitry for deenergizing the motor after a predetermined time period.

19. The sprayer of claim 2, wherein the spray head is defined by an annular disk having a central opening with a seam between the cup and the disk.

20. The sprayer of claim 2, wherein the spray from the spray head can extend more than three feet from the sprayer.

21. The sprayer of claim 14, wherein the metering system further includes an inertial valve rotatable along a longitudinal spin axis to unseat a ball valve.

22. The sprayer of claim 21, wherein the inertial valve includes upper and lower plates hinged together and having one or more weights that are driven outward by centrifugal force when the plates are rotated so as to move the plates apart, the inertial valve having a pin attached to the upper plate along the axis for contacting and unseating the ball valve.

23. The sprayer of claim 22, wherein the control is a switch for activating a motor coupled to the lower plate along the spin axis and timing circuitry for deenergizing the motor after a predetermined time period.

24. The sprayer of claim 14, wherein the spray head includes a disk rotatable about a longitudinal spin axis and having an axial recess at its center in fluid communication with passages leading radially from the recess to ports at the periphery of the disk.

25. The sprayer of claim 24, wherein the control is a switch for activating a motor coupled to the disk along the spin axis and timing circuitry for deenergizing the motor after a predetermined time period.

26. The sprayer of claim 2, wherein the spray head is a rotatable fluidic oscillator.

27. The sprayer of claim 2, wherein the metering system includes a solenoid valve.

28. The sprayer of claim 2, wherein the cleanser is pressurized.

29. The sprayer of claim 28, wherein the spray head is an impeller rotatable about a longitudinal axis and having an axial opening at its center and oppositely facing nozzles at its ends.

30. The sprayer of claim 28, wherein the spray head is a deflector plate having a radial surface tapering toward its periphery.

31. The sprayer of claim 30, wherein the deflector plate is rotatable about a longitudinal spin axis and wherein the control is a switch for activating a motor

coupled to the deflector plate along the spin axis and timing circuitry for deenergizing the motor after a predetermined time period.

32. The sprayer of claim 28, wherein the metering valve is solenoid selectively operable to obstruct the passage and allow the cleanser to the spray head having a plurality of radial nozzles.

33. A method of automatically spraying a shower enclosure with a liquid cleanser, comprising:

activating a timer on a sprayer to initiate a first countdown;

at the expiration of the first countdown, automatically spraying cleanser at side walls of the enclosure; and

automatically terminating the spray cycle at the expiration of a second countdown following the first countdown.

34. An automated sprayer for spraying the walls of an enclosure with a cleanser, comprising:

a container containing a cleanser;

a metering system for controlling flow of the cleanser out of the container;

a spray dish for spraying cleanser during a spray cycle, the dish having a cover over it that is connected to a drive shaft, the dish also having at least one side opening;

the dish being operatively linked to the cover to rotate therewith; and

a control for initiating the spray cycle.

35. The sprayer of claim 34, wherein the dish has at least two side openings which are of different size or shape with respect to each other.

36. The sprayer of claim 34, wherein the sprayer further comprises a motor positioned over the dish.

37. The sprayer of claim 36, wherein the container is connected to a fill tube for passing a liquid to the dish.

38. The sprayer of claim 37, wherein the motor is connected to the cover via a hollow drive shaft, and a fill tube passes from the container through the drive shaft.

39. The sprayer of claim 34, wherein the dish has a flexible string connected thereto to deflect liquid exiting a side opening.

40. The sprayer of claim 34, wherein the dish has a vane positioned on an interior surface of the dish.

41. An automated sprayer for spraying the walls of an enclosure with a cleanser, comprising:

a container containing a cleanser;

a nest for receiving the container, the nest having an upwardly facing piercing post for piercing a closure of the container;

a metering system for controlling flow of the cleanser out of the container;

a spray dish for spraying cleanser during a spray cycle; and

a control for initiating the spray cycle.

42. The sprayer of claim 41, wherein the container and piercing post are constructed and arranged so that if the container is positioned in an assembled state with the piercing post, and then removed from the piercing post, the resulting construct will not permit re-assembly in a defect-free manner.

43. A container for use with the sprayer of claim 42, wherein the container has adjacent its mouth a flange selected from the group of a break off flange and a pivotable flange.

44. An automated sprayer for spraying the walls of an enclosure with a cleanser, comprising:

a container containing a cleanser;

a metering system for controlling flow of the cleanser out of the container;

a spray dish for spraying cleanser during a spray cycle; the dish having a cover over it through which extends a drive shaft, the dish also having at least one side opening; and

a control for initiating the spray cycle;

wherein the container has an outlet with two parallel passages, one of which has a restriction at an upstream end of that passage.

45. A container for use with an automated sprayer for spraying the walls of an enclosure with a cleanser, the container comprising:

a bottom wall;

a side wall extending from the bottom wall and surrounding an internal cavity that contains a cleanser;

a mouth adjacent an end of the container opposite the bottom wall; and

a dish integrally formed in an outer surface of the bottom wall, the dish having a support platform suitable for supporting soap thereon when the container is inverted, and a sloped drain channel.

46. An automated sprayer for spraying the walls of an enclosure with a cleanser, comprising:

a container containing a cleanser;

a metering system for controlling flow of the cleanser;

a spray head for spraying cleanser during a spray cycle; and

a control for automatically controlling spraying of the cleanser out the sprayer;

wherein the sprayer is configured so as to be mountable wholly within the enclosure, and when so mounted can spray the cleanser even when the sprayer does not receive water from a water supply of a building in which the enclosure is located.

47. The sprayer of claim 46, wherein the sprayer is suitable to be hung from a shower head and operates using battery power.